Operating Instructions

for

Pressure Sensors

Heavy Duty Compact

Model: SEN-86../ SEN-87..

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2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.
The instruction manuals on our website www.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EC-machine guidelines.

3. Instrument Inspection

Instruments are inspected before shipping and sent out in perfect condition.
Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:
The standard delivery includes:
- Pressure Sensors Heavy Duty Compact model: SEN-86../87..

4. Regulation Use

Pressure sensors transmit the mechanical pressure signal into an electrical output signal. The media's which are in contact with the instrument should have no effects on the instrument materials used. Do not use standard units in hazardous areas and for oxygen applications.

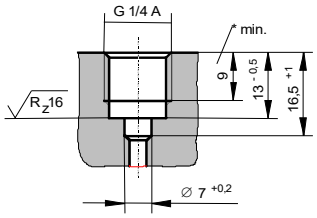
5. Operating Principle

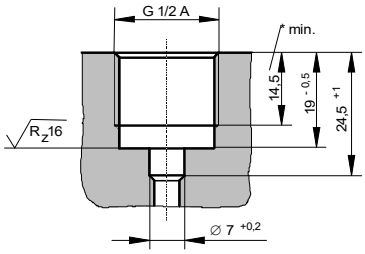
KOBOLD Pressure sensors model SEN-86 are inexpensive pressure sensors with thick film ceramic pressure element. With their accuracy, reliability and compact design, they are perfectly suitable for OEM applications in medium to high quantities.
The materials and technology used make these pressure sensors insensitive to chemically aggressive media and mechanical load.
Particularly hydraulics systems with their high and fast pressure peaks are thus preferred applications.

6. Mechanical Connection and Putting to Operation

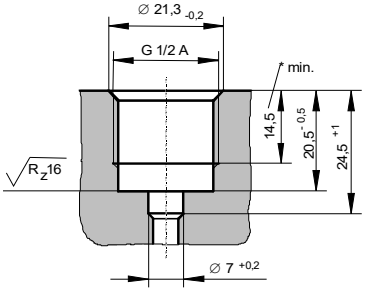
The place where pressure is taken should be prepared according the following specifications for the screw-in threads.
For sealing, please use sealing discs acc. DIN 16258 or profile washers. The maximum initial tension depends on the material, the shape of the used sealing and the mechanical connection of the pressure sensor.
There should be no vibrations and/or no radiation of heat near the mounting position of the sensors. Please pay attention that the given technical data's are not exceeded. After the mechanical and electrical connection, the sensor works immediately.

Sealing acc. DIN 16288





Sealing with flat gasket



7. Electrical Connection

- Ensure that the power is disconnected during connection of the cable.
- The electrical connection is made either via plug and pin or by cable.
- The exact wiring scheme is shown on the sketches hereafter or at the type plate of your sensor.

Meaning of the different connector markings

UB+	positive pole of the supply voltage
OV	negative pole of the supply voltage
S+	positive pole of the output signal
S-	negative pole of the output signal
Shielding	Cable protection enclosure-earth

The sensor can be supplied with a non stabilised DC source with the given voltage range. The minimum supply voltage for pressure sensors with current output should be the minimum UB plus the minimum voltage, which is needed for the external indicator:

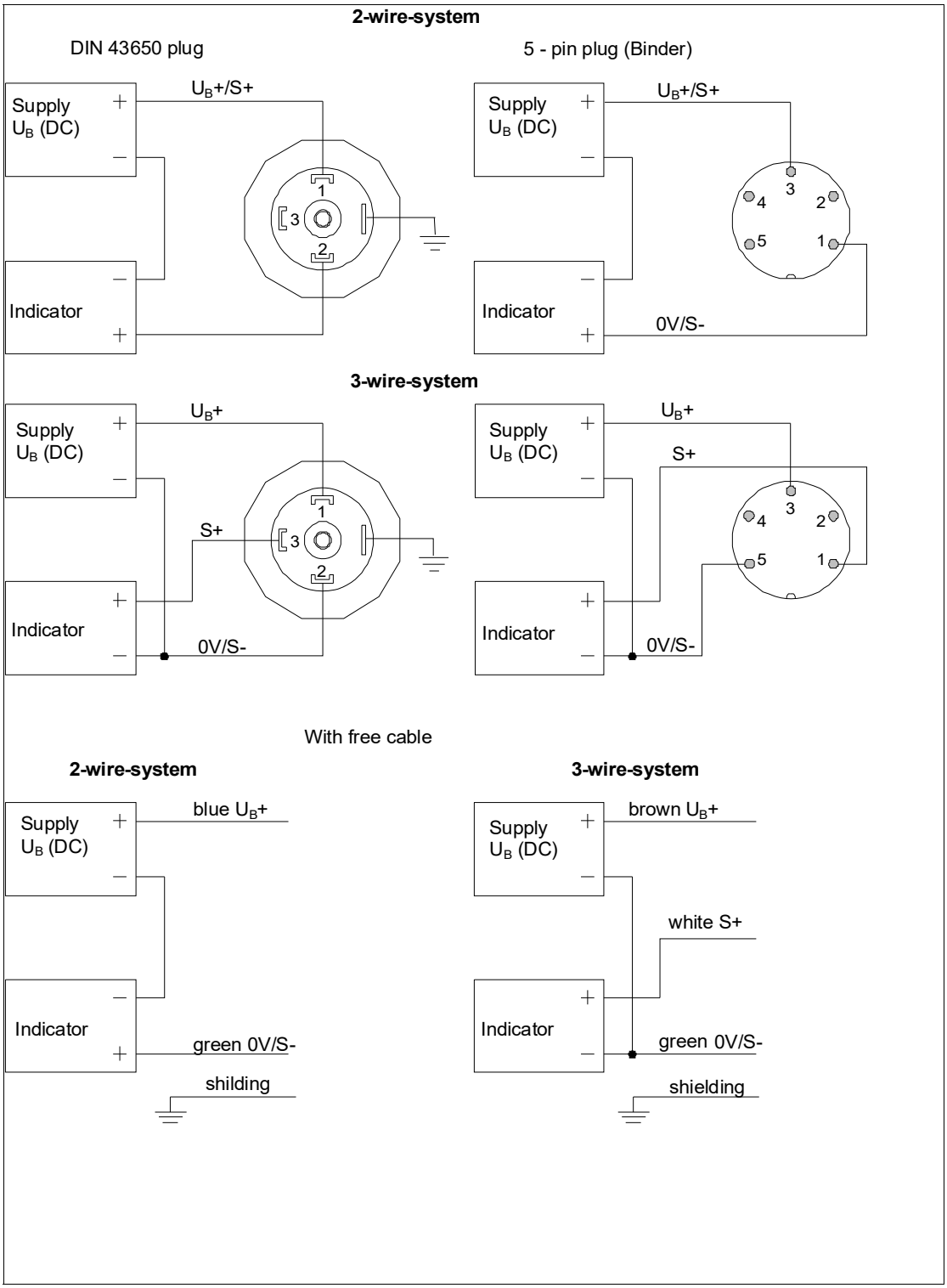
Current output

	2-wire system	**3-wire system**
Output signal	4...20 mA	0...20 mA
Supply voltage	U_B= 15 ... 32 V_{DC}	
Permissible load	R_A[Ohm] = (U_B[V] - 15 V) / 0,02 A	
Wiring	see schematic	

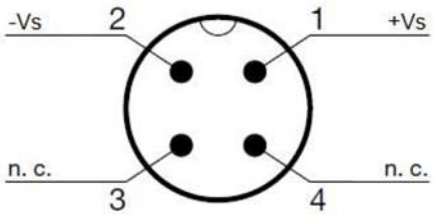
Voltage output

	3-wire system	**3-wire system**
Output signal	0...5 V	0...10 V
Supply voltage	U_B= 15 ... 32 V_{DC}	
Permissible load	R_A >5 kΩ	R_A >10 kΩ
Wiring	see schematic	

Electrical connection, principle drawings pin assignment, cable marking



Electrical connection SEN-8630
Plug version, 4-pin

Plug version (Basic)	SEN-8630 (Option, M12x1,5) 
PIN 1	Supply +Vs
PIN 2	Supply −Vs
PIN 3	-
PIN 4	-

Attention! Incorrect wiring will lead to damage of the unit's electronics.

8. Maintenance

The pressure sensors described in this manual are maintenance free! They do not contain any components which may be repaired or exchanged locally. Repairs are not possible other than in our factory.

9. Trouble shouting

Trouble	Possible reason	What's to do
No signal	no supply voltage broken wire	Check your power supply and wiring. If necessary replace defective parts
	Sensor has been wired faulty	Check the wiring according to the sketches, adjust wiring if necessary.
	No pressure	Check your tubing , valves open?
	Defective electronics caused by to high supply voltage or by external voltage	Return sensor to us for repair
Unchanged signal by changing pressure	Pressure port is clocked	Clean the pressure port
	Defective electronic caused by to high supply voltage or by external voltage	Return sensor to us for repair
	Pressure sensor over pressurized	Return sensor to us for repair
To high, even on changing pressure unchanged signal	Defective electronics caused by to high supply voltage or by external voltage	Return sensor to us for repair
Span of signal to small	Supply voltage to low Resistance to high	Adjust supply voltage Adhere to max. allowable resistance
Zero signal to high	Mechanical overburden	Return to us for repair
Output signal non linear	Mechanical overburden	Recalibrate sensor resp. return to us for repair

10. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

11. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

12. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

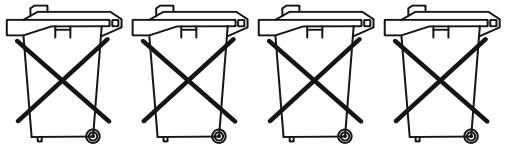
13. Disposal

Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

Batteries

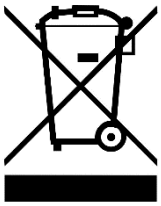
Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



Cd[1] Hg[2] Pb[3] Li[4]

1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

Electrical and electronic equipment



14. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Pressure Sensors **models: SEN-86... and SEN-87...**

to which this declaration relates is in conformity with the following EU directives stated below:

2014/30/EU **EMC Directive**
2014/68/EU **PED**
PS>200 bar; module A, pressure accessory
2011/65/EU **RoHS** (category 9)

Also, the following standards are fulfilled:

EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

EN 61326-2-3:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Hofheim, 26 August 2024

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